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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,876	01/31/2001	Kouji Yoshida	202652US2	2058

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ALEXANDRIA, VA 22314

EXAMINER

BALI, VIKKRAM

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/772,876

Applicant(s)

YOSHIDA, KOUJI

Examiner

Vikkram Bali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The specification is objected by the examiner because the specification fails to incorporate the written description of the limitation as claimed in claims 5-6 and 9-10. Also, the specification is generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6-9 and 9-10 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon the specification pages 41 last 6 lines to page 42 first 5 lines.

Also, the specification is generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

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3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-7 and 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5-6 and 9-10 are claiming "plus defocus states or minus defocus state", these limitation are not define in the specification for one to identify the meaning of the terms.

Claim 7, the limitation of "estimating ...at said focus state using said picked up image at said focus state." Is indefinite because if you already know the positional information of focus state why would you want to estimate again.

5. For the examining purposes the limitation of "plus defocus states or minus defocus state", is read as the plurality of defocus images, because plurality of images inherently has the plus and minus included in them.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugaya et al (US 5754299).

With respect to claim 1, Sugaya discloses the picking up the image of the mark on the substrate, (see 4, lines 30-400 obtaining the relationship between the image of the mark and defocus amount, (see figure 6, step ST 5) and determining the positional information of said mark (see col. 4, lines 30-40 and col. 25, lines 30-35, 50-60) as claimed. However, he fails to disclose plurality of defocus stages, as claimed. But, col. 4, lines 39-41 states that the calculation is based upon the plurality of images formed on the detection surface, and the images formed on the detection surface are the images picked up by the pickup device and the images picked up by the image device are the defocus images, col. 4, lines 32-35. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply use the defocus images in order to come up with the positional information in order to focus the apparatus.

With respect to claim 2, he further discloses the image pick up plans which tilts against an imaging plane, (see figure 19, the numerical 111 is tilted against the imaging plane) as claimed.

With respect to claim 3, he further discloses the positional information is estimated by using the image picked up results at said plurality of defocus state, (see col. 25, lines 50-60) as claimed.

With respect to claim 4, he further discloses positional information is estimated considering a respective contrast of image picked up results at said plurality of defocus state, (see col. 25, lines 50-60, and it is inherent that the images are the pixels with the light intensity component i.e. the contrast of the image) as claimed.

Claim 16 is rejected for the same reasons as set forth for the rejection of claim 1. Also, With respect to claim 16, he further discloses the substrate with a divided area (see col. 1, lines 11-18, the semiconductor inspection and the wafer is divided into areas of pattern), the positional information is calculated and transformed to the divided area while controlling a position of the substrate, (see col. 25, lines 57-63) as claimed.

Claim 18 is rejected for the same reasons as set forth for the rejection of claim 1. Also, With respect to claim 18, he further discloses stage unit which moves, (see col. 25, lines 58-62) as claimed.

With respect to claim 20, he further discloses the lithographic process, (see col. 1, lines 17-20) as claimed.

Claim 19 is rejected for the same reasons as set forth for the rejection of claim 1 because claim 19 is claiming the computer program for the method subject as claimed in claim 1.

8. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugaya et al (US 5754299) in view of Hirai et al (US 5608488).

With respect to claim 5 and 6 Sugaya discloses the invention substantially as disclose and as describe above in claim 3. Sugaya also disclose the plus and minus

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defocus stage (see above rejection under 35 USC 112, and col. 4, lines 32-35, the plurality of images formed on the detection surface, and the images formed on the detection surface are the images picked up by the pickup device and the images picked up by the image device are the defocus images. However, Sugaya fails to disclose the focus state is estimated using extrapolation or the interpolation using the position of defocus states, as claimed. Hirai teaches a data processing device for the camera, that includes focusing of the camera using the images obtained by the camera (so called defocus images) and the interpolation or the extrapolation of the points (see col. 5, lines 15-32) as claimed.

It would have been obvious to one ordinary skilled in the art at the time of invention to combine the two references. The data processing for the camera as taught by Hirai can easily be incorporated in to the data processing of the Sugaya camera, as there is a data processing structure present in Sugaya (see figure 19 numerical 152). This modification provides an easier interpolation or extrapolation method for focusing the camera.

Claims 7 and 8 as best understood are rejected for the same reasons as set forth for the rejection of claims 3 and 4 because claims 7 and 8 are claiming similar subject matter as claims 3 and 4.

Claims 9 and 10 are rejected for the same reasons as set forth for the rejection of claims 5 and 6 because claims 9 and 10 are claiming similar subject matter as claims 5 and 6.

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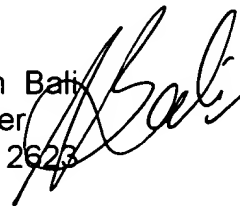
Claims 11-15 and 17 as best understood are rejected for the same reasons as set forth for the rejection of claims 1-10 and 16 because claims 11-15 and 17 are claiming the apparatus for the method claimed in claims 1-10 and 16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Vikkram Bali
Examiner
Art Unit 2623



vb
January 15, 2004